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(54) Title: OPTIMIZED EXPRESSION OF HPV 45 L1 IN YEAST

(57) Abstract: Synthetic DNA molecules encoding the HPV45 L1 protein are provided. Specifically, the present invention provides polynucleotides encoding HPV45 L1 protein, wherein said polynucleotides have been codon-optimized for high level expression in a yeast cell. The synthetic molecules may be used to produce HPV45 virus-like particles (VLPs), and to produce vaccines and pharmaceutical compositions comprising the HPV45 VLPs. The vaccines of the present invention provide effective immunoprophylaxis against papillomavirus infection through neutralizing antibody and cell-mediated immunity.

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